



Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	04/12/2022	
Media Program:	Air	
Regulatory Program(s)	SIP, Title V, NESHAP, NSPS	
Company Name:	Sasol Chemicals LLC	
Facility Name:	Lake Charles Chemical Complex	
Facility Physical Location:	2201 Old Spanish Trail	
(city, state, zip code)	Westlake, Louisiana, 70669	
Mailing address:	2201 Old Spanish Trail	
(city, state, zip code)	Westlake, Louisiana, 70669	
County/Parish:	Calcasieu Parish	
Facility Phone Number	337-494-5087	
Facility Contact:	Mary Allyson Leger	Environmental Manager
	Mary.idlett@us.sasol.com	
FRS Number:	110017418061	
Identification/Permit Numbers:	AI#: 3271 / 3088-V3; 2743-V10; PSD-LA-814(M1)	
Media Identifier Number:	2201900003	
NAICS:	325110	
SIC:	2869	
Personnel participating in inspection:		
James Haynes	EPA ECD-AT	Inspector
Ben Rosenthal	EPA ECD-AT	Inspector
Mary Allyson Leger	Sasol Chemicals LLC	Environmental Manager
Cedric Duncan	Sasol Chemicals LLC	Environmental Specialist LDAR-BWON
Matthew Todd	Sasol Chemicals LLC	Environmental Specialist-Air
Kyle Evers	Sasol Chemicals LLC	Environmental Specialist-Air
Rusty Jack	Sasol Chemicals LLC	Environmental Specialist-Air
EPA Lead Inspector Signature/Date		
	Ben Rosenthal	Date
Supervisor Signature/Date		
	James Leathers	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspectors James Haynes and I, Ben Rosenthal, (“We”, “Us”) arrived at the Sasol Chemicals LLC (“Sasol”) Lake Charles Chemical Complex (the “Facility”, the “Site”, or the “LCCC”) at 8:15 a.m. on April 12, 2022, for an unannounced Clean Air Act (“CAA”) inspection. A concurrent announced inspection was being conducted at the facility by Justin Chen, EPA Region 6 Inspector, and Doreen Au, EPA National Enforcement Investigation Center Inspector. We met with Mr. Chen, Ms. Au, and Sasol representatives Mary Leger, Environmental Manager, and Mathew Todd, Environmental Specialist-Air, and Cedric Duncan, Environmental Specialist-LDAR-BWON, in a conference room of the site’s main administrative building. Inspector Credentials were presented to Ms. Leger. We informed Ms. Leger and Mr. Todd of the purpose and scope of the inspection. We discussed the monitoring activities that were conducted using EPA’s Geospatial Measurement of Air Pollution (“GMAP”) vehicle on April 11, 2022. The GMAP made entry at the facility and monitored for ethylene oxide and volatile organic compounds while at the site on April 11, 2022. Several process areas of the facility were identified by the GMAP team where emissions were monitored: two uncontrolled gooseneck vents at the Ziegler process unit, the Comonomer-1 Unit (“Comon”) and areas to the northwest of the Ethylene Unit. The GMAP team took summa canister samples at several locations and utilized an Optical Gas Imaging Camera (“OGIC”) at the gooseneck vents and ethylene unit. The scope of the inspection is a partial compliance evaluation (“PCE”) to identify the cause of the emissions detected by the GMAP at the site. This inspection occurred as part of the Administrator’s Pollution Accountability Team effort.

FACILITY DESCRIPTION

Sasol operates the LCCC which consists of two plants, east and west, and includes an ethane cracker, the Comon, an ethylene unit, an ethylene oxide/ethylene glycol plant (“EOEG”), two units which produce alcohols and alumina products via the Ziegler and Guebert processes, an ethoxylate unit, and low-density polyethylene (“ldpe”) units. The LCCC has approximately 1,200 employees.

At the Comon, ethylene is converted catalytically into a product mixture consisting of 1-hexene and 1-octene which are separated by distillation, stored in tanks, and then periodically loaded out by trucks and railcars. Unreacted ethylene is recycled. Polymer byproduct is removed from the reactor and then pelletized. Vents from tanks and loadings are routed to two flares, EQT0392 and EQT0393, which are permitted with the Ethylene Unit and/or steam boilers of the Steam Unit. The annual production rate of the Comon is 258.6 million pounds of 1-hexene and 1-octene. 1-hexene and 1-octene produced at the Comon are used in other Sasol processes at the LCCC including at the Ziegler process units and the ldpe units. Sasol operates the Comon under the authorization of Louisiana Department of Environmental Quality (“LDEQ”) issued CAA Part 70 Operating Permit No. 3088-V3. The enclosed ground flare (EQT0392) and an elevated flare (EQT0393) are used as control devices for various vents from the Comon and the Ethylene Unit. Emissions from the enclosed ground flare are authorized under the

Ethylene Unit CAA Part 70 Permit No. 2743-V10, and Prevention of Significant Deterioration ("PSD") permit: PSD-LA-814(M1). The Comon is permitted to operate 8,760 hours per year.

Section II – OBSERVATIONS

After a discussion with facility personnel of the GMAP findings from the previous day, Mr. Haynes and I focused our investigation on the Comon unit. We explained that we would utilize a Thermo Scientific Toxic Analyzer 2020 ("TVA") Flame Ionization Vapor Detector ("FID") and a FLIR GF320 OGIC to monitor components of the Comon for leaks. Sasol representatives informed us that facility personnel would comparatively monitor any leaks discovered by EPA utilizing their own FID.

We departed the conference room and met in the main office hallway with members of the site's LDAR team including Mr. Duncan, Rusty Jack, Environmental Specialist-Air, Kyle Evers, Environmental Specialist-Air, and several LDAR technicians of BrandSafway, the site's LDAR services contractor. Mr. Duncan provided an overview of the site's Leak Detection and Repair ("LDAR") program to Mr. Haynes and I. Mr. Duncan estimated that there were approximately 175,000 components site-wide that were under the purview of the facility's LDAR compliance program. Mr. Duncan stated that the site utilizes a Guideware LDAR software database for data collection and management. Mr. Haynes requested a copy of the backup file of the LDAR database. Mr. Duncan stated that LDAR inspection activities, including Method 21 monitoring, were conducted by the facility's contractor, BrandSafway, at the Comon and EOEG. Mr. Duncan stated that work practice standards for leak inspection and repair at the Comon were driven by the provisions of the Miscellaneous Organic Chemical National Emissions Standard for Hazardous Air Pollutants ("MON") to which the Comon is subject. The site's operation and maintenance department perform first repair attempts at leaking components. Mr. Duncan stated that the facility occasionally performs drill and tap repairs. Mr. Duncan also stated that the site tries to replace defective valves with low-e certified valves.

Mr. Haynes and I returned to our vehicle to calibrate the TVA. We then drove with Mr. Duncan to the Comon, arriving around 10:30 a.m. Mr. Haynes and I signed hot work permits after arriving at the Comon and observed the unit. We observed the embossed stainless-steel tags used by the facility to denote components that required monitoring. We also observed maintenance activity happening in the Comon. Mr. Duncan explained that maintenance was sand blasting and power washing and that areas impacted by those activities were inaccessible to us. We monitored several areas on the northside of the Comon. We monitored 52 components including valves, connectors and pumps. At pump C12-550B/A we detected strong odors consistent with solvents and heavy-oil respectively. We also noted that the TVA detected elevated background readings of up to 20 ppm VOC in this area, however we did not detect leaking components in the immediate vicinity of the pump. We departed the site at 12:30 p.m.

We returned to the site at approximately 1:26 p.m. to continue monitoring with the OGIC. and arrived at pump C12-550B/A at approximately 2:05 p.m. We used the OGIC and continued to walkthrough the Comon. We visualized emissions at one valve/connector interface. Site personnel monitored the observed components and found readings of above 400 ppm, which are not considered detectable leaks under the provisions of the MON. Mr. Duncan stated that although the site has no specific action level

under the leak definition thresholds, a reading that close to the leak level would be flagged for follow-up assessment or repair of the component. We proceeded through the Comon focusing our OGIC observations on equipment in gas/vapor and light liquid service.

At the north end of the Comon we observed the adjacent enclosed ground flare. We observed moderate to heavy visualized emissions with the OGIC from the top of the ground flare enclosure. The characterization of heavy visualized emissions is consistent with observations of intermittent periods of 100% opacity at the top of the ground flare enclosure. These moderate to heavy emissions were consistent throughout the observation period and the residual plume of emissions from the enclosed ground flare extended for a distance away from the emission point (See Area of Concern ("AOC") Number 1). Mr. Duncan used the OGIC to observe emissions from the enclosed ground flare. Infrared videos recorded with the OGIC of the enclosed ground flare are found in Appendix 1 – Video Log. We departed the area of the Comon at approximately 4:30 p.m.

Section III – AREAS OF CONCERN

Before departing the site, we reviewed the observations documented during the inspection with Mr. Duncan. We noted that there were no areas of concern regarding the LDAR program at the time of inspection, and that no emission exceeding the regulatory leak definition had been observed during the walkthrough of the Comon. We discussed the OGIC visualized emissions observed at the enclosed ground flare (AOC 1). Mr. Haynes confirmed that the OGIC videos taken would be subsequently shared with the facility electronically.

1) Visualized emissions were observed from the enclosed ground flare (EQT0392).

General work practice requirements for flares are listed in 40 CFR § 63.11(b). Unassisted flares must maintain a net heating value of at least 200 Btu/scf or greater evaluated on the flare vent gas. Additionally, a PSD review was triggered by the construction and operation of the Comon unit and the enclosed ground flare was designated as a Best Available Control Technology ("BACT") for emissions from the Comon at the time of the review. According to the PSD review, to be considered a BACT, the enclosed ground flare should achieve a control efficiency of at least 98%.

The following AOC was noted after the inspection:

2) Comon emissions from the most recent project are inconsistently reported in the Part 70 Permit and the PSD permit.

PSD-LA-814(M1) authorizes annual emissions from the Comon of 38.57 tons per year of VOC. Part 70 Permit no. 3088-V3 authorizes annual emissions from the Comon of 36.06 tons of VOC per year. This discrepancy indicates inconsistent representations of emissions from the facility in permit applications to LDEQ.

Section IV – FOLLOW UP

No additional information was received by EPA after exiting the facility on April 12, 2022. Information requested by EPA during the inspection was not received by the requested date of May 13, 2022. Additional information regarding the observations made by the GMAP at the facility will be provided in a separate GMAP Pollution Accountability Team report.

Section V – LIST OF APPENDICES

Appendix 1 – Video Log – 2 OGI videos taken 4/12/2022

Appendix 1

Video Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Video Log

Location: Sasol Chemicals LLC / Lake Charles Chemical Complex		
City: Westlake	Calcasieu	State: Louisiana



Video File Name: MOV_0044.mp4
Date of Video: 04/12/2021
Time of Video:
Videographer: James Haynes
Description: OGIC visualized emissions from the enclosed ground flare at the Comon unit. *



Video File Name: MOV_0046.mp4
Date of Video: 4/12/2022
Time of Video:
Videographer: Ben Rosenthal
Description: OGIC visualized emissions from the enclosed ground flare at the Comon unit. *

*All videos can be made available for viewing upon request.